



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF APPEALS

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#25  
12/19/03  
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In re Patent Application of: )  
OLLOFSSON ET AL. ) Examiner: R. BARNIE  
Serial No. 09/582,637 ) Art Unit: 2643  
Filing Date: OCTOBER 20, 2000 ) Attorney Docket No. 54320  
For: TELECOMUNICATIONS ) Telefacsimile No. 703-872-9314

APPELLANT'S APPEAL BRIEF

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Sir:

Submitted herewith is Appellant's Appeal Brief (in triplicate) together with the required \$320.00 filing fee. If any additional extension and/or fee is required, authorization is given to charge Deposit Account No. 01-0484.

(1) REAL PARTY IN INTEREST

The real party in interest for the present application is the assignee, STMicroelectronics SA.

(2) RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences for the present application.

**(3) STATUS OF CLAIMS**

All of Claims 34-63 are pending in the present application and all are rejected. Accordingly, all of Claims 34-63 are the subject of this appeal.

**(4) STATUS OF AMENDMENTS**

The claims were not amended after final. The claims in the Appendix incorporate all prior amendments.

**(5) CONCISE SUMMARY OF THE INVENTION**

Referring to Fig. 1 (reproduced below) and paragraph Nos. [0025]-[0027] of the present specification, the present invention is directed to an active POTS splitter, method and system including the use of active splitter circuitry for connecting to a subscriber line to separate analog POTS signals from xDSL signals, and line test circuitry with a unique identity code associated with the active splitter circuitry for transmitting a test signal and the code on the line based upon an event or receipt of a test request signal.

A network operator providing a broadband service, for example xDSL (Digital Subscriber line), must be able to measure certain parameters for a wire pair that is to be used to deliver the service. This is necessary both to ensure that the service can be successfully provided and to enable the network operator to guarantee service quality. There are many advantages if the measurements can be performed on a two sided basis. This means that a signal source capable of transmitting test messages/signals, upon request, must be placed at the customer's end of the line. When delivering a broadband service, such as

xDSL, without inband POTS, it is necessary to separate the analog POTS signal and the xDSL signal from each other at both the CO (Central Office) and the CP (Customer's Premises). The results of applying a test message/signal to the line at the customer's end are measured at the CO (Central Office) end. The present invention provides an active POTS splitter which includes this testing feature.

The present invention provides the incorporation of test functionality for the line between the CP and the CO, or ONU (Optical Network Unit), with an active splitter design, for example, implemented on a single chip. This enables two-sided measurements on the line, both during installation and during operation. The measurements are performed at the CO end upon request, or when the test device automatically sends a test message signal. In this way there is no need for field technicians at the CP side. A unique identity code is transmitted to the CO each time a test is started, or on receipt of a request from the CO.

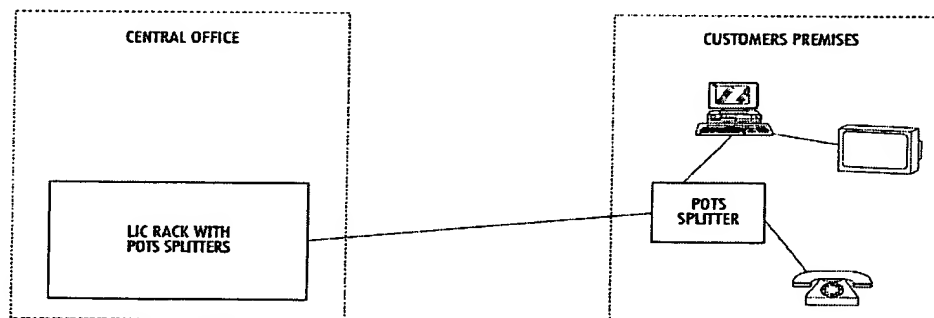


FIG. 1.

In a typical application of the present invention, a customer calls a Customer Service Department and requests xDSL-service. The CSD tells the customer that they will send him/her a test device, in other words, the active POTS splitter with line testing functionality, to check the quality of the line. When the customer receives the POTS splitter, he/she can install it simply by inserting it in the telephone jack socket. It is then possible to perform measurements on the line from the CO. The results of these measurements can then be promptly sent to the customer. It may then be possible to deliver the xDSL service the next day or, alternatively, after some changes are made to the network. The test circuitry and POTS splitter of the present invention can be inexpensively produced.

**(6) ISSUES**

The issue presented on appeal is whether Claims 34-63 are patentable under 35 U.S.C. §103 over Scholtz et al. (U.S. 6,301,337) in various combinations with Dresser (U.S. 5,357,556), Lechleider (U.S. 6,091,713), Bingel (U.S. 6,014,425), Winkler (U.S. 5,870,451), Kennedy (U.S. 5,799,060), Keefe (U.S. 6,005,921), Chan (U.S. 5,974,115) and/or EP 0790977.

**(7) GROUPING OF CLAIMS**

For the purposes of addressing the rejections under 35 U.S.C. §103, the grouping of the claims is: Claims 34-63 stand or fall together as a group.

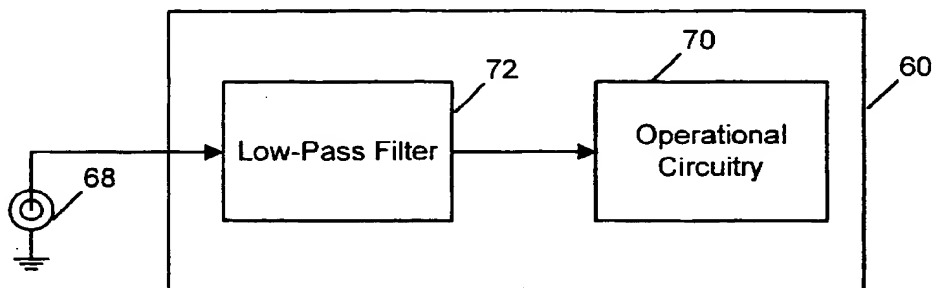
**(8) ARGUMENT**

Claims 34-63 were rejected in view Scholtz et al. (U.S. 6,301,337) together in various combinations with Dresser (U.S. 5,357,556), Lechleider (U.S. 6,091,713), Bingel (U.S. 6,014,425), Winkler (U.S. 5,870,451), Kennedy (U.S. 5,799,060), Keefe (U.S. 6,005,921), Chan (U.S. 5,974,115) and/or EP 0790977 for the reasons set forth on pages 2-8 of the Final Office Action. Appellants contend that Claims 34-63 clearly define over the cited references, and in view of the following remarks, reversal of the Examiner's rejections under 35 U.S.C. §103 is requested.

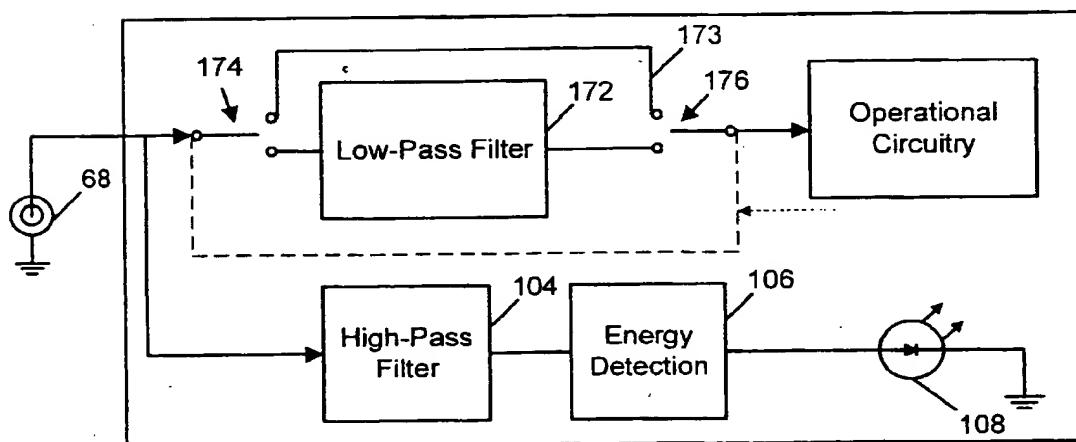
Independent Claim 34 is directed to an active POTS splitter comprising active splitter circuitry for connecting to a subscriber line to separate analog POTS signals from xDSL signals, and line test circuitry with a unique identity code associated with the active splitter circuitry for transmitting a test signal and the code on the line based upon at least one of an event and receipt of a test request signal. Independent Claims 46 and 49 are directed to methods including use of such features in measuring quality parameters relating to xDSL transmission on a subscriber line. Independent Claim 63 is directed to a telecommunications system also including such features.

In rejecting independent Claims 34, 46, 49 and 63, the Examiner (pages 2 and 3 of the Final Office Action) has relied on the Scholtz et al. patent as allegedly teaching the use of a telephone handset **60** with a POTS filter and line test circuitry **70** for transmitting a test signal to test the transmission quality of a local loop (referring, for example, to FIGs. 3A and

quality of a local loop (referring, for example, to FIGs. 3A and 6A of Scholtz et al. reproduced below). While correctly recognizing that the Scholtz et al. patent does not teach or suggest the use of a unique identity code, the Examiner asserts, that it is "notoriously well known" in the art to use identification codes including "ANI or CLI" to identify a subscriber loop. The Examiner also relies on a selective combination of the Scholtz et al. patent with the Dresser or Lechleider et al. to allegedly meet the claimed features.



**FIG. 3A**  
Scholtz et al.



**FIG. 6A**  
Scholtz et al.

Appellant agrees with the Examiner that the Scholtz et al. patent is directed to a handset and POTS filter for testing transmission quality of a local loop. However, more accurately, Appellants point out that the operational circuitry **70**, as described in Scholtz et al., provides known "functional aspects of the telephone" (Col. 6, lines 37-46). In other words, such operational circuitry does not transmit a test signal to test the transmission quality of a local loop as erroneously relied upon by the Examiner. Moreover, the handset and POTS filter of the Scholtz et al. patent are explicitly related to testing by a technician at a subscriber's premises, for example, at the junction box located at the subscriber's home or office as taught by Scholtz et al. at column 2, lines 60-66, and column 5, lines 5-17. In other words, the purpose of the Scholtz et al. patent is to allow manual on-premise testing by a field technician, for example, "by ear" (Col. 2, lines 5-8) and, accordingly, there is no need for a unique identity code to be transmitted with the test signal. A capability for using a unique code in identifying the test handset is irrelevant to the Scholtz et al. patent.

Accordingly, there is no suggestion or motivation for the selective combination of the use of automatic number identification with the Scholtz et al. patent. Furthermore, even such a selective combination fails to produce the claimed invention.

The Dresser patent is directed to a system and method for testing equipment in a telephone network for remote maintenance and verification of subscriber loops. The system and method

accommodate known AC and DC fault testing techniques while providing duplex verification of the subscriber loop identification.

The Examiner describes the Lechleider et al. patent as teaching generation of a test signal and identification of a subscriber loop through caller ID or ANI information. The Lechleider et al. patent discloses a logic device that places a telephone call, via a modem at a subscriber's premises, to a distant modem at a qualification center to determine the viability of deploying ADSL over the subscriber line.

As the Examiner and Board are aware, to support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the Examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references. Both the suggestion to make the claimed combination and the reasonable expectation of success must be founded in the prior art and not in Appellants' disclosure.

The Scholtz et al. patent, as noted already, is directed to a handset that can be taken by a technician to a subscriber's premises to perform on-premise testing without the transmission of any test signal. In contrast, the Dresser system includes an ID unit located at the local central office, and the Lechleider et al. patent relies on a logic device such as the subscriber's own personal computer, a Set top Box, a Web TV, or any other device already at the subscriber's premises. The logic device communicates via a modem to a service provider at a remote



central location so that a determination can be made at the central location as to whether the subscriber loop can support copper-based broadband technology. The Dresser or Lechleider et al. patents do not teach or suggest that the respective devices are combined with, or part of, an active POTS splitter. Accordingly, there is no motivation for selectively combining any of the patents, and indeed, each teaches away from the other.

The other cited references are relied upon by the Examiner to teach the use of various line testing features as discussed by the Examiner on pages 5-8 of the Final Office Action. However, none of these references makes up for the deficiencies of the Scholtz et al., Dresser and Lechleider references as discussed above.

There is simply no teaching or suggestion in the cited references to provide the combination of features as claimed. Accordingly, for at least the reasons given above, Appellants maintain that the cited references do not disclose or fairly suggest the invention as set forth in Claims 34, 46, 49 and 63. Furthermore, no proper modification of the teachings of these references could result in the invention as claimed. In view of their patentability, Appellants submit that their dependent claims, which recite yet additional features of the present invention are also patentable. No further discussion of these claims is therefore necessary.

#### CONCLUSIONS


In view of the substantive arguments presented above, it is submitted that all of the Claims 34-63 are patentable over the

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prior art. Accordingly, Appellants respectfully request that the rejections be reversed.

Respectfully submitted,

  
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**APPENDIX INCLUDING THE CLAIMS ON APPEAL**  
**FOR U.S. PATENT APPLICATION SERIAL NO. 09/582,637**

34. An active POTS splitter comprising:  
active splitter circuitry to be connected to a  
subscriber line for separating analog POTS signals from xDSL  
signals; and

line test circuitry associated with said active  
splitter circuitry for transmitting a test signal on the line  
based upon at least one of an event and receipt of a test  
request signal, said line test circuitry having associated  
therewith a unique identity code transmitted with the test  
signal.

35. An active POTS splitter according to Claim 34  
wherein the test signal is for a specific line test.

36. An active POTS splitter according to Claim 34  
wherein the test signal is in a general form for use with a  
range of different line tests.

37. An active POTS splitter according to Claim 34  
wherein the test signal comprises at least one pulse.

38. An active POTS splitter according to Claim 34  
wherein the test signal comprises at least one step.

39. An active POTS splitter according to Claim 34  
wherein the test signal comprises at least one chirp.

40. An active POTS splitter according to Claim 34 wherein the test signal comprises a series of sinusoidal signals of predetermined amplitude, each sinusoidal signal having a different frequency and the series thereof spanning a frequency range for which the line is to be tested.

41. An active POTS splitter according to Claim 40 wherein each sinusoidal signal has a predetermined duration to facilitate synchronization and measurement.

42. An active POTS splitter according to Claim 34 wherein the event is according to a predetermined schedule.

43. An active POTS splitter according to Claim 34 wherein the line test signal comprises a short-circuiting of the subscriber line.

44. An active POTS splitter according to Claim 34 wherein said splitter circuitry and said line test circuitry are implemented as a single integrated circuit.

45. An active POTS splitter according to Claim 44 further comprising:

a printed circuit board mounting said single integrated circuit; and

a line jack connected to said printed circuit board for insertion into a customer premises line socket.

46. In a telecommunications system using xDSL and POTS and comprising at least one central office connected to a plurality of subscribers by subscriber lines extending to each subscriber's premises, a method of measuring quality parameters relating to xDSL transmission on a subscriber line and comprising:

using an active POTS splitter including line test circuitry for generating a test signal on the subscriber line from a subscriber's premises based upon at least one of an event and receipt of a test request signal, and transmitting a unique identity code with the test signal;

performing measurements at the at least one central office on the test signal; and

deriving quality parameters for the subscriber line from the measurements.

47. A method according to Claim 46 wherein the event comprises the subscriber line changing from a high impedance state to a low impedance state.

48. A method as claimed in Claim 46 wherein the event comprises a telephone switching from an on-hook state to an off-hook state.

49. In a telecommunications system using xDSL and POTS and comprising at least one central office connected to a plurality of subscribers by subscriber lines extending to each subscriber's premises, a method of measuring quality parameters

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relating to xDSL transmission on a subscriber line and comprising:

using an active POTS splitter including line test circuitry for generating a test signal on the subscriber line from a subscriber's premises based upon receipt of a test request signal, and for transmitting a unique identity code based upon at least one of receipt of a test request signal and receipt of an identification request signal;

performing measurements at the at least one central office on the test signal; and

deriving quality parameters for the subscriber line from the measurements.

50. A method according to Claim 49 wherein the test signal is for performance of a specific line test.

51. A method according to Claim 49 wherein the test signal is of a general form for use with a range of different line tests.

52. A method according to Claim 49 wherein the test signal comprises at least one pulse.

53. A method according to Claim 49 wherein the test signal comprises at least one step.

54. A method according to Claim 49 wherein the test signal comprises at least one chirp.

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55. A method according to Claim 49 wherein the test signal comprises a series of sinusoidal signals of predetermined amplitude, each sinusoidal signal having a different frequency and the series thereof spanning a frequency range for which the line is to be tested.

56. A method according to Claim 55 wherein each sinusoidal signal has a predetermined duration to facilitate synchronization and measurement.

57. A method according to Claim 49 wherein the test signal is transmitted a predetermined time after receiving the test request signal.

58. A method according to Claim 46 wherein the event comprises a predetermined schedule.

59. A method according to Claim 49 further comprising transmitting the unique identity code based upon receiving an identification request signal.

60. A method according to Claim 49 wherein the event comprises short-circuiting of the subscriber line.

61. A method according to Claim 49 further comprising collecting and storing results obtained from line tests at the at least one central office and deriving a log of line conditions for each subscriber line therefrom.

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62. A method according to Claim 49 further comprising collecting and storing a plurality of results obtained from line tests at the at least one central office and averaging the plurality of results to obtain a composite result for each subscriber line.

63. A telecommunications system adapted to employ POTS and xDSL, comprising at least one central office connected to a plurality of subscriber premises by subscriber lines extending to respective subscriber premises, at least one of the subscriber premises having an active POTS splitter locating therein, the active POTS splitter comprising:

active splitter circuitry to be connected to a subscriber line for separating analog POTS signals from xDSL signals; and


line test circuitry associated with said active splitter circuitry for transmitting a test signal on the line based upon at least one of an event and receipt of a test request signal, said line test circuitry having associated therewith a unique identity code transmitted with the test signal.



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**CERTIFICATE OF MAILING**

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